

# The BOG

## Agenda and Goals for Today

- Updates
- Bass Lake Design
- BOG Business Plan
- Scheduling BOG Meetings



## Item 2: Brief Updates



# BOG Update

- Wildlife Study
  - Draft report in March 2015, Final in June
- “Clean Lakes” Study
  - Draft report in July 2015, Final in September
- Portal Update
  - New data in CEDEN? – haven’t checked since December meeting



# Other Updates

- Statewide Mercury Program – Amanda Palumbo
- Others?





## Item 3: Bass Lakes Sampling Plan

### Desired Outcomes:

- Begin the process of selecting lakes for inclusion in the program
- Begin nailing down details of the sampling design – set stage for drafting the Sampling Plan



# Recap:

## Approved Multi-Year Workplan

		Actual	Planning						
		2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Management, Coordination	Project management and coordination, peer review: SWAMP and CWQMC (SFEI)	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
	Project management and coordination, monitoring design, data validation, infrastructure: SWAMP (MPSL)	\$76,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
Sport Fish	Clean Lakes Study	\$263,457							
	Status and Trend Monitoring (Lakes, Coast, Rivers)		\$280,000	\$360,000	\$360,000	\$360,000	\$460,000	\$460,000	\$360,000
	Coastal Fish (Round 2)								
	Statewide Synthesis Report (SWAMP + Other)					\$100,000			\$100,000
Portal	Upload, Maintenance, Minor Enhancements	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000
	UI/UX Survey and Add Functionality								
	Upgrade Code: Open Source Base Map			\$30,000					
Cyanotoxins	Cyanotoxin White Paper	\$50,000							
	Cyanotoxin Tissue Monitoring								
	Cyanobacteria		\$150,000	\$100,000	\$100,000				
Wildlife	?? - opportunistic partnering?								
CECs	Anticipate this being covered by others								
Miscellaneous	SQO	\$7,500							
	TOTAL	\$511,957	\$620,000	\$680,000	\$650,000	\$650,000	\$650,000	\$650,000	\$650,000

# Recap:

## Approved Multi-Year Workplan

		Actual	Planning						
		2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Management, Coordination	Project management and coordination, peer review: SWAMP and CWQMC (SFEI)	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
	Project management and coordination, monitoring design, data validation, infrastructure: SWAMP (MPSL)	\$76,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
Sport Fish	Clean Lakes Study	\$263,457							
	Status and Trend Monitoring (Lakes, Coast, Rivers)		\$280,000	\$360,000	\$360,000	\$360,000	\$460,000	\$460,000	\$360,000
	Coastal Fish (Round 2)								
	Statewide Synthesis Report (SWAMP + Other)					\$100,000			\$100,000
Portal	Upload, Maintenance, Minor Enhancements	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000
	UI/UX Survey and Add Functionality								
	Upgrade Code: Open Source Base Map			\$30,000					
Cyanotoxins	Cyanotoxin White Paper	\$50,000							
	Cyanotoxin Tissue Monitoring								
	Cyanobacteria		\$150,000	\$100,000	\$100,000				
Wildlife	?? - opportunistic partnering?								
CECs	Anticipate this being covered by others								
Miscellaneous	SQO	\$7,500							
	TOTAL	\$511,957	\$620,000	\$680,000	\$650,000	\$650,000	\$650,000	\$650,000	\$650,000

# Master Revisit Schedule

X = funded by SWAMP, O = funded by another program

[illegible]



# Master Revisit Schedule

X = funded by SWAMP, O = funded by another program

[illegible]

# Master Revisit Schedule

X = funded by SWAMP, O = funded by another program

[illegible]

# Power Analysis Update



# Don Steven's improved code

1. Grouped lakes into panels so they can be re-sampled at regular intervals
2. Added lake effect into the linear model equation to remove inter-lake variation from the analysis
3. Runs 4 models at once:
  - Regression without lake effect and linear model with lake effect
  - Random sampling and sampling by panel for both the regression and linear model

# Scenario Comparisons – new code

- Sampling 10 fish per lake...
- Sample 30 lakes per year...
- Variable equation and sampling design (4 options)...
- How long (years) will it take to detect a regional increase of 0.008 ppm/yr?

	Annual	Biennial
<b>Simple regression, random sampling [PREVIOUS RESULTS]</b>	22 yrs	28 yrs
<b>Simple regression, with panels</b>	17 yrs	22 yrs
<b>Regression with lake effect, random sampling</b>	10 yrs	14 yrs
<b>Regression with lake effect, with panels</b>	9 yrs	12 yrs



# More Scenario Comparisons – new code

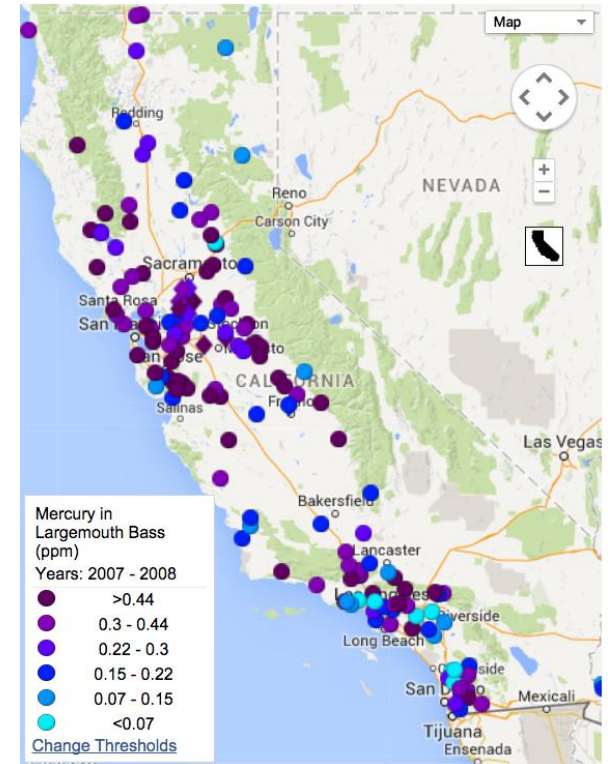
Lake s per year	Yrs btw sam ples	Size of trend	Simple Regressio n, random sampling	Simple regression, panels	Linear model, random sampling	Linear model, panels
30	1	0.004	35 years	29 years	16 years	16 years
30	2	0.004	46 years	34 years	22 years	20 years
30	1	0.008	22 years	17 years	10 years	9 years
30	2	0.008	28 years	22 years	14 years	12 years

# Next steps

- Variation in trend by lake

# Sampling Plan: Overview

- Revisit high priority bass lakes on a 10 year cycle for status updates
- Pick 150 lakes of highest interest
- Primary focus on mercury
- Also obtain statewide trend through random sampling of this population

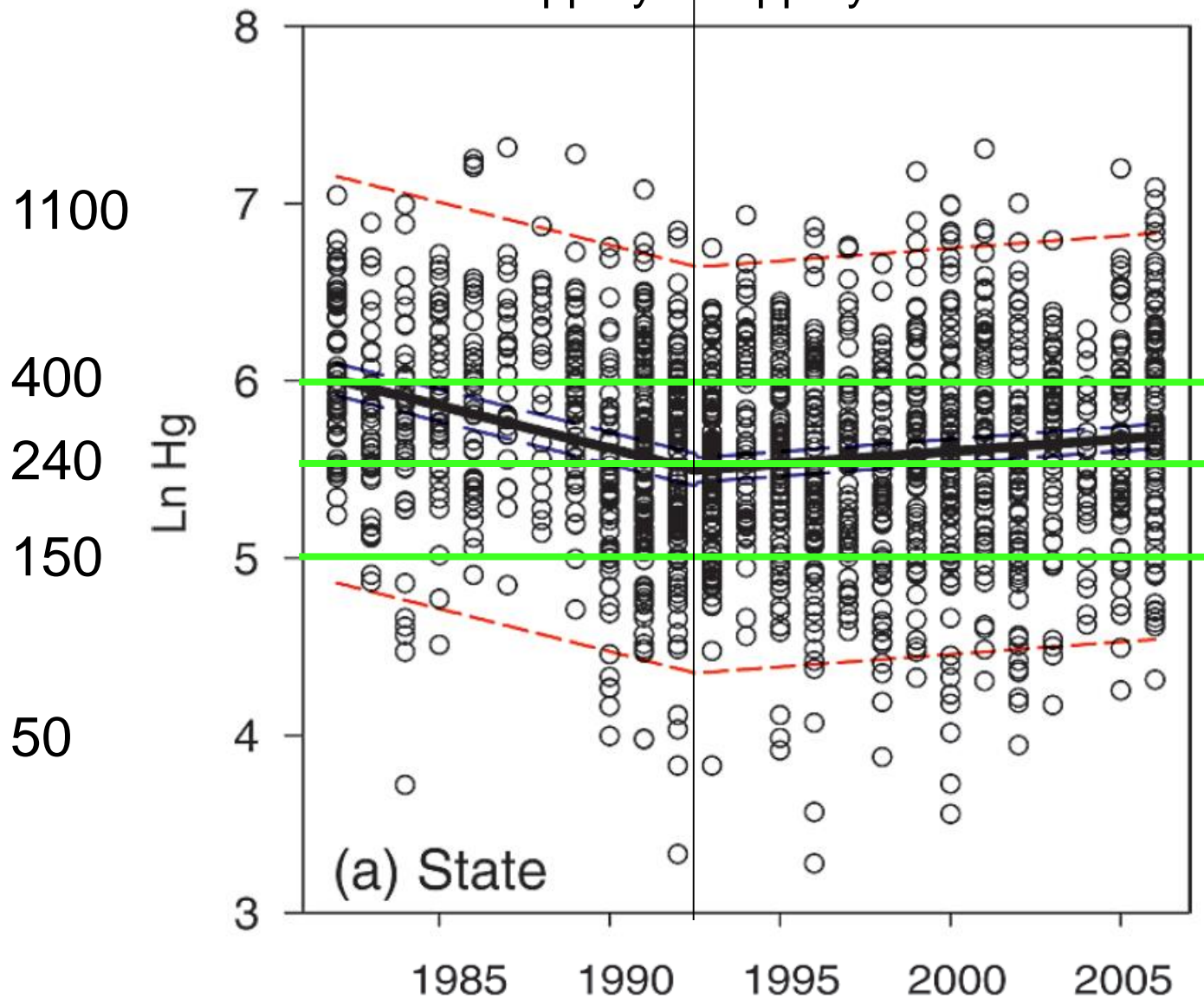


# Sampling Plan: Management Questions

1. Has the impairment status of each priority lake or reservoir changed since it was last sampled?
2. What is the trend in statewide average mercury concentrations in fish in priority lakes and reservoirs?

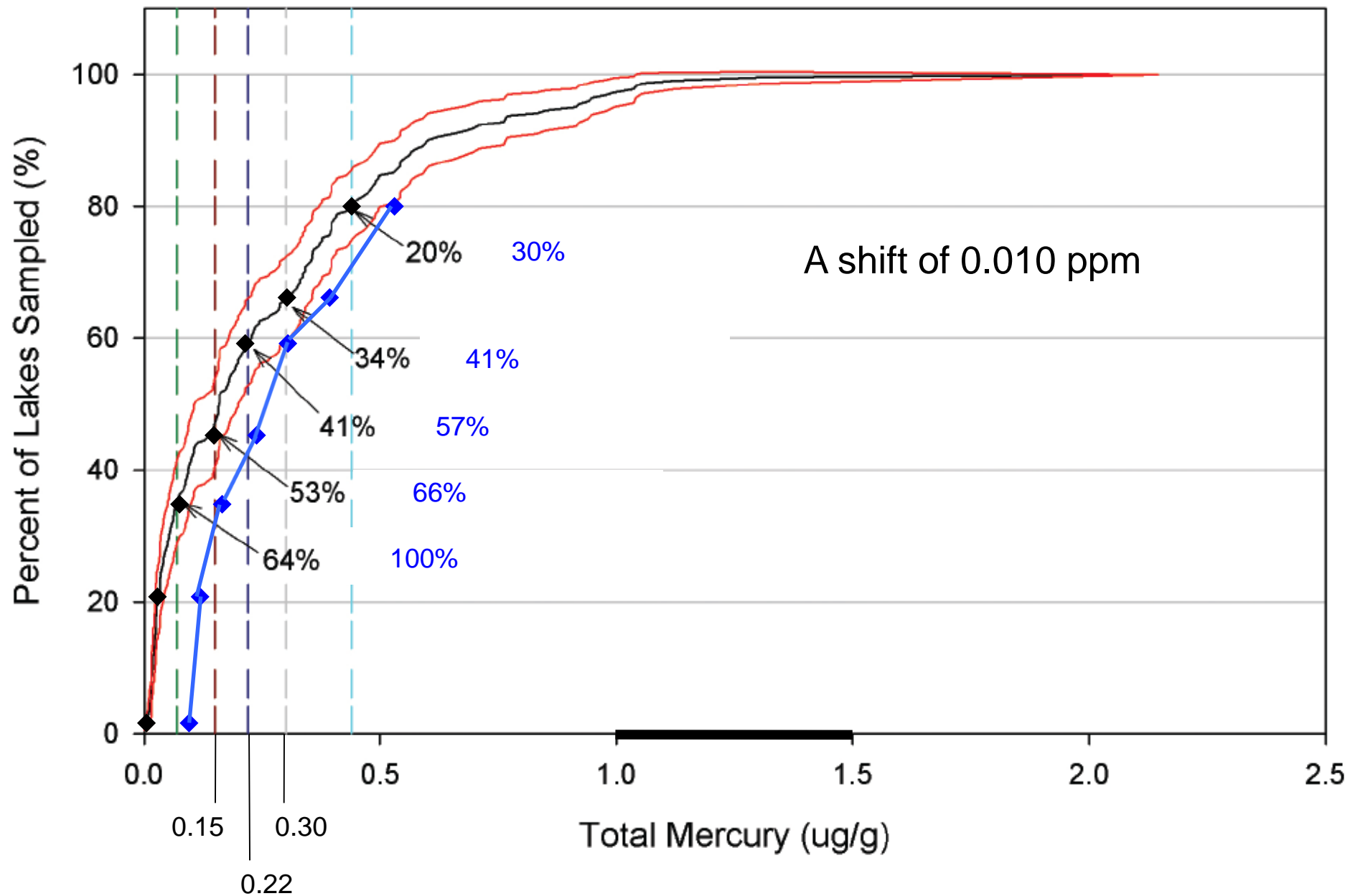
Decline from 400 to 240 in 10 yr  
16 ppb/yr

Increase from 240 to 300 in 15 yr  
4 ppb/yr



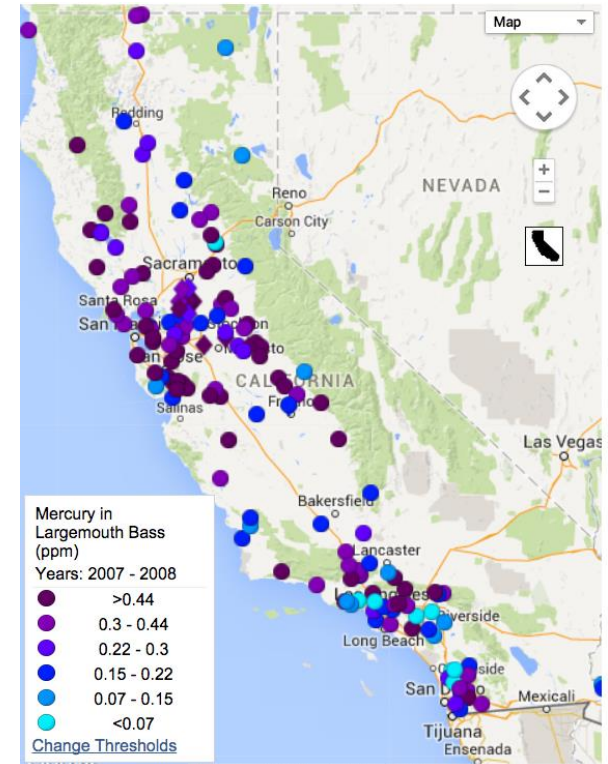


# Management Implications



# Sampling Plan: Sampling Scheme

- 5 randomly-drawn subsets of 30 lakes (“panels”)
- “Rotating panel” design
  - Advantages
    - Increased power for trend detection
    - Predictable schedule for each lake
    - Don’t lose much statistically
- Panels become fixed – best to choose them carefully now
- Biennial sampling
- Revisit each lake once every 10 years



# Sampling Plan: Lake Selection

	COUNT	167	167	114	26	19	7	33	123	30	9	3	
Station Number (Lakes Report)	Station Name	Regional Board	Bass Sampled	Small	Medium	Large	Extra-large	Random	Targeted	Moderate PCBs (>20)	High PCBs (>100)	High DDTs (>500)	Comments
3	Copco Lake	1	X	X					X				
5	Dead Lake	1	X	X					X				
4	Iron Gate Reservoir	1	X	X					X				
69	Lake Mendocino	1	X		X				X				
56	Lake Pillsbury	1	X		X				X				
9	Lake Shastina	1	X	X					X				did not have bass the last time sam
90	Lake Sonoma	1	X		X				X				
8	Reservoir F	1	X	X				X					
32	Ruth Lake	1	X	X					X				
101	Spring Lake	1	X	X					X				
168	Almaden Lake	2	X	X					X	X			
174	Anderson Lake	2	X	X					X				
124	Bon Tempe Lake	2	X	X					X				
128	Briones Reservoir	2	X	X				X					Fishing not allowed.
159	Calaveras Reservoir	2	X		X			X					Fishing not allowed.
173	Calero Reservoir	2	X	X					X				
	Camden Percolation Pond across	2	X	X						X	X		
178	Coyote Lake	2	X	X					X				
132	Lafayette Reservoir	2	X	X					X				
140	Lake Chabot (San Leandro)	2	X	X				X		X	X		
115	Lake Chabot (Vallejo)	2	X	X					X	X			
152	Lake del Valle	2	X	X					X				
98	Lake Henne	2	X	X				X					
167	Lake Vasona	2	X	X					X	X	X		
	Lexington Reservoir	2	X										
157	Lower Crystal Springs Reserv	2	X	X				X					Fishing not allowed.
116	Nicasio Lake	2	X	X					X				
172	Oiger Quarry Ponds	2	X	X				X					
129	San Pablo Reservoir	2	X	X					X				
143	Shadow Cliffs Reservoir	2	X	X					X	X			
114	Soulejoule Lake	2	X	X					X				
165	Stevens Creek Reservoir	2	X	X					X	X			
138	Upper San Leandro Reservoir	2	X	X				X					Fishing not allowed.
176	Chesbro Reservoir	3	X	X					X	X			I believe it went dry this last summe
192	Hernandez Reservoir	3	X	X					X				
208	Lake Cachuma	3	X			X			X				
195	Lake Nacimiento	3	SMB			X			X				
194	Lake San Antonio	3	X			X			X				
201	Little Oso Flaco Lake	3	X	X					X	X		X	

# Sampling Plan: Lake Selection

- “Random” lakes?
- Any other important lakes?
- Need input from the regions

# Sampling Plan: Design Within Each Lake

- Number of sites per lake – varies with size, as in past sampling
- Revisit sites from 2007/8



# Sampling Plan: Analytes

- Mercury – all lakes, individual bass, 12 fish per site
- PCBs – 20% of lakes, bottom-feeder composites, 2 composites per site
- OCPs – 5% of lakes, bottom-feeder composites, 2 composites per site



# Sampling Plan: Budget Breakdown

2014/15				
# Water Bodies		24		
	Cost per sample	Number	Rounded Number	Cost
Sampling	10000	24	24	240000
Composite prep (20% of lakes, 2 composites)	116	9.6	8	928
Archive (20% of lakes, 3 per composite)	7	28.8	24	168
PCBs (20% of lakes, 2 composites per lake)	630	9.6	8	5040
OCPs (5% of lakes, 2 composites per lake)	630	2.4	2	1260
Mercury (DMA) (12 individual fish per lake)	79	288	288	22752
Aging (price per lake)	85	24	24	2040
Validation				
Cruise report				819
Total				273007

# Sampling Plan: Coordination

- Region 4 – 25 lakes, beginning in May
- Region 5 – 4 lakes
- USGS? – will ask again



# Sampling Design: Design Within Each Lake – Other Parameters

- Small fish?
- Sediment?
- Selenium?

# Sampling Plan: Timeline

- Bass lake selections – due Feb 18
- Draft sampling plan distributed – April 8
- Review Panel meeting – April 15 or 16
- QAPP
- Begin Region 4 sampling – May
- Begin bass lake sampling – June





## Item 4: BOG Business Plan

### Desired Outcomes:

- A plan for developing the BOG business plan
- Agree on input to bring to the Council meeting later this month

## Item 5: Scheduling BOG Meetings

Desired Outcome:

- Decision on BOG meeting schedule

# Should we go to a more fixed schedule?

- **April meeting** – Review Panel – Sampling plan and Wildlife Report – needs to be on 15<sup>th</sup> or 16<sup>th</sup>
- **July meeting** – Review Panel – teleconference – Clean Lakes Report
- Other items to discuss this year
  - Business Plan (due December)
  - Filling in the rest of the long-term sampling plan, especially 2016 (due February)